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- **Williams, Laird C.**  
St. Charles, Illinois 60175 (US)
- **Fertig, Kenneth W.**  
Palo Alto, California 94306 (US)
- **Uckun, Serdar N.**  
Palo Alto, California 94306 (US)
- **Wang, Xuemei**  
Mountain View, California 94043 (US)

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(71) Applicant: **Rockwell Electronic Commerce  
Corporation**  
Wood Dale, Illinois 60191 (US)

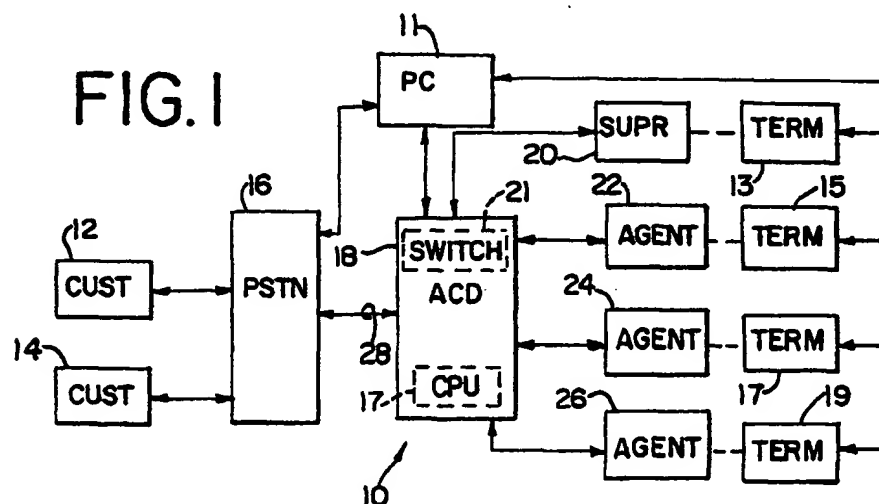
(74) Representative: **Modiano, Guido, Dr.-Ing. et al**  
Modiano, Josif, Pisanty & Staub,  
Baaderstrasse 3  
80469 München (DE)

(72) Inventors:  
• **Doyle, Robert**  
Newbury Park, California 91320 (US)

(54) **Dynamic skill-based call routing depending on occupancy levels of agents**

(57) A method and apparatus are provided for assigning agents of an automatic call distributor to incoming calls of a plurality of call types handled by the automatic call distributor. The method includes the steps of determining a target occupancy matrix including a target occupancy for each agent of the agents of the automatic call distributor for each call type of the plurality of call

types. The method further includes the steps of processing a call of a first type of the types determined in the target occupancy matrix and assigning the call to an agent of the agents of the automatic call distributor with a largest relative difference between an actual occupancy of calls of the first type handled by the agent and the target occupancy of calls of the first type determined for the agent in the target occupancy matrix.



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# EUROPEAN SEARCH REPORT

Application Number  
EP 00 10 8093

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 5 828 747 A (FISHER THOMAS S ET AL) 27 October 1998 (1998-10-27)	1-6, 9-19, 22-32, 35-37	H04M3/523
Y	* column 1, line 11 - column 2, line 59 * * column 3, line 34 - column 6, line 19 * * figures 1-7 *		
Y	---	7,8,20, 21,33,34	
Y	US 5 864 617 A (DONNELLY DAVID R) 26 January 1999 (1999-01-26)	7,8,20, 21,33,34	
A	* abstract; figures 2-5,8-11 *		
	* column 1, line 44-50 * * column 2, line 1-44 * * column 4, line 16-35 * * column 5, line 32 - column 15, line 12 *	1-6, 9-19, 22-32, 35-37	
A	---		TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	EP 0 740 450 A (SIEMENS ROLM COMM INC ;IBM (US)) 30 October 1996 (1996-10-30)	1-37	H04M
	* abstract; figures 1,2 * * page 1, line 11 - page 6, line 20 *		
E	---		
E	GB 2 345 819 A (LUCENT TECHNOLOGIES INC) 19 July 2000 (2000-07-19)	1-37	
	* the whole document *		
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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 1 September 2003	Examiner Nash, M
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 (03.82) (P04C01)



European Patent  
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Application Number

EP 00 10 8093

#### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

#### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-37



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**LACK OF UNITY OF INVENTION**  
**SHEET B**

Application Number  
EP 00 10 8093

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

**1. Claims: 1-37**

A method of assigning agents of an automatic call distributor to incoming calls of a plurality of call types handled by the automatic call distributor, such method comprising the steps of:  
determining a target occupancy matrix including a target occupancy for each agent of the agents of the automatic call distributor for each call type of the plurality of call types;  
processing a call of a first type of the types determined in the target occupancy matrix; and  
assigning the call to an agent of the agents of the automatic call distributor with a largest relative difference between an actual occupancy of calls of the first type handled by the agent and the target occupancy of calls of the first type determined for the agent in the target occupancy matrix.

That is to say that the ACD system is trying to distribute calls so that a target matrix based on occupancy of agents is arrived at.

**2. Claim : 38**

A method of assigning a plurality of agents to incoming calls by an automatic call distributor, such method comprising the steps of:  
determining a target matrix specifying a mix and proportion of call types to be handled by each agent of the plurality of agents;  
receiving and assigning calls based upon the mix and proportion of call types specified in the target matrix with agent selection based upon an actual occupancy of the target matrix by the agent and a relative difference between the actual occupancy and the target matrix.

That is to say that here the ACD system is trying to distribute calls so that a target matrix based on a specific mix and proportion of call types is arrived at.

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 10 8093

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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01-09-2003

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82